

REMARKS

Applicant responds hereby to the non-final Office Action mailed September 28, 2009, in this application.

The September 28, 2009, Office Action rejects claims 1 and 23 under 35 USC §112, first paragraph, as failing to comply with the written description requirement, rejects claims 1-3, 10, 11, 17, 22 and 26 under 35 USC 103(a) over US Patent No. 5,366,312 to Raines (Raines), rejects claims 4-5, 7 and 8 under 35 USC 103(a) over Raines in view of US Patent No. 5,729,904 to Trott (Trott), rejects claims 6 and 25 under 35 USC 103(a) over Raines in view of Trott, rejects claim 14 under 35 USC 103(a) over Raines in view of US Patent No. 5,694,693 to Hutchins, et al. (Hutchins), rejects claims 15-16 under 35 USC 103(a) over Raines in view of US Patent No. 6,796,888 to Jasch (Jasch), rejects claims 18, 19 and 20 under 35 USC 103(a) over Raines in view of US Patent No. 5,496,316 to Goris (Goris), rejects claim 21 under 35 USC 103(a) over Raines in view Goris, rejects claim 24 under 35 USC 103(a) over Raines, rejects claims 27-29 under 35 USC 103(a) over Raines, rejects claim 30 under 35 USC 103(a) over Raines in view of Goris and rejects claim 31 under 35 USC 103(a) over Raines and Goris in view of Jasch.

In response, applicant amends independent claims 1, 18, 27 and 30, amends dependent claim 10 and 13 formally, cancels claims 11, 12 and 21, without prejudice and presents new claim 32 (which depends from claim 27) and new independent method claim 33.

Support for the amendment of independent claim 1 is found in cancelled claims 11, 12 and 21 and in applicant's Specification at page 5, lines 28-31 and page 6, lines 1-5 and 12-14.

Support for the amendment of independent claim 18 is found in applicant's Specification at page 6, lines 12-14, page 6, line 19-page 7, line 5 and in Figs. 2-4.

Support for the amendment of independent claim 27 is found in applicant's Specification at page 5, lines 28-31, page 6, lines 1-5 and page 7, lines 7-33.

Support for the amendment of independent claim 30 is found in cancelled claims 11 and 21 and in applicant's Specification at page 6, line 19-page 7, line 5 and in Figs. 2-4.

Support for new claim 32 is found in applicant's Specification at page 5, lines 30 and 31 and support for new claims 33 is found in applicant's Specification at page 6, line 19-page 7, line 33 and in Fig. 2.

After amendment hereby, pending independent claims 1, 18, 27, 30 and 33, and pending claims 2-8, 10, 13-20, 22 and 24-32, which depend therefrom, are patentable over Raines whether take alone or in any combination with Trott, Hutchins, Jasch and Goris for at least the following reasons.

Raines, the primary prior art reference, discloses a universal attachment assembly for securing saw blades (16) to an actuator shaft (12) of an oscillating surgical saw (10). Blades (16) are held between a fixed receptor plate (14) on shaft (12) and a selected surface of a selected profiled mounting disk (24) using a locking nut (20). The receptor plate (140 and the profiled mounting disk (24) both comprise form-locking elements (30, 34, 86), which correspond with each other.

Claim 1

Applicant's invention as set forth in amended independent claim 1, as

distinguished from Raines, comprises a device with a centering element (10), a bearing flange (38) comprising a circular bearing face and twelve form-locking elements (12) located on said bearing flange (38) for fastening an axially mountable tool (14) to a drive shaft (16) of a hand-held power tool where the tool (14) is drivable in an oscillating manner. The centering element (10) is provided for centering said tool (14) relative to said drive shaft (16).

The twelve form-locking elements (12) are provided for defining a rotary position of said tool (14) relative to said drive shaft (16), each of which has at least one slaving face (22) extended radially outward and in an axial direction relative to an axis of the drive shaft (16), which twelve form-locking elements (12) are located radially outside said centering element (10), wherein a radius associated with one position of the twelve form-locking elements (12) is four times as large as a radius of said centering element. The twelve form-locking elements (12) are distributed uniformly over an angular range that is defined by the entire circumference of said circular bearing face and have a trapezoidal cross section.

These cooperating structural elements form a stable construction with respect to the forces acting on the tool (14) in a radial direction of the drive shaft (16) during intended device operation. The evenly distributed form-locking elements (12) with their trapezoidal cross section allows for forces in a circumferential and a radial direction to be transferred to the bearing flange (38) effectively, as distinguished from known device constructions such as Raines. The novel device construction as claimed realizes an

advantageous separation of a centering function from a defining and/or torque transmission function realizing a comfortable fastening process for a user.

Raines does not disclose or suggest such a device construction. That is, Raines' form-locking elements (e.g., form-locking element (34)), do not have at least one slaving face that extends radially outward in an axial direction relative to an axis of the actuator shaft (12), as claimed. Raines does not teach or suggest twelve form-locking elements (34) located on receptor plate (14), which are distributed uniformly over an angular range defined by an entire circumference of a circular bearing face of the receptor plate (14), as claimed, nor twelve form-locking elements (34) having a trapezoidal cross section, as claimed.

Accordingly, amended independent claim 1, and claims 2, 3, 10, 13-17, 22 and 26, which depend from claim 1 (claims 11 and 12 are cancelled without prejudice or disclaimer of subject matter), are patentable over Raines under 35 USC §103(a), and applicant respectfully requests withdrawal of the rejections thereunder.

Claims 4-8 and 25

With respect to the rejection of claims 4-8 and 25 under 35 USC §103(a) over Raines in view of Trott, applicant respectfully asserts that Trott suffers the same shortcomings of Raines as set forth above in response to the rejection of claim 1.

That is, while Trott may teach the use of pins (32) for connecting a blade in at least three or four rotary positions, neither Raines nor Trott teach or suggest at least one slaving face that extends radially outward in an axial direction relative to an axis of the actuator shaft (12), twelve form-locking elements (34) located on receptor plate (14) that

are distributed uniformly over an angular range defined by an entire circumference of a circular bearing face of the receptor plate (14) or twelve form-locking elements (34) have a trapezoidal cross section, as set forth in claims 1, 4, 5, 7 and 8.

Nor would it have been obvious to the skilled artisan to have modified Raines and Trott to provide at least twelve rotary positions because such a modification would not realize the invention as set forth in claims 6 and 25.

Accordingly, applicant respectfully requests withdrawal of the rejection of claims 4-8 and 25 under 35 USC §103(a) over Raines in view of Trott.

Claim 14

In response to the rejection of claim 14 over Raines in view of Hutchins under 35 USC §103(a), applicant respectfully asserts that while Hutchins teaches the use of a chamfer to easily secure a blade, Hutchins nevertheless fails to overcome the shortcomings of Raines as set forth above in response to the rejection of claim 1 over Raines.

Hutchins discloses a tool (10) that can be fastened to a device of a saw that is driven in an oscillating fashion. While Hutchins includes form-locking elements for engaging with offset slots (14) of tool (10), the form-locking elements have a rectangular cross section and in amounted state of the tool (10) the offset slots (14) only abut on contact points of the form-locking elements.

Neither Raines nor Hutchins teach or suggest offset slots having a trapezoidal cross section of form-locking elements of a device for fastening the tool (10), whereby in a mounted state each of the offset slots abut on at least one slaving face that extends

radially outward in an axial direction relative to an axis of the actuator shaft (12), twelve form-locking elements (34) located on receptor plate (14) that are distributed uniformly over an angular range defined by an entire circumference of a circular bearing face of the receptor plate (14) or twelve form-locking elements (34) have a trapezoidal cross section, as set forth in claims 1 and 14.

Accordingly, applicant respectfully requests withdrawal of the rejection of claim 14 under 35 USC §103(a) over Raines in view of Hutchins.

Claims 15 and 16

In response to the rejection of claims 15 and 16 over Raines in view of Jasch under 35 USC §103(a), applicant respectfully asserts that while Jasch teaches the use of a spring element (98) for the purpose of preventing a release of a screw in operation, Jasch nevertheless fails to overcome the shortcomings of Raines as set forth above in response to the rejection of claim 1 over Raines.

Neither Raines nor Jasch teach or suggest offset slots having a trapezoidal cross section of form-locking elements of a device for fastening the tool (10), whereby in a mounted state each of the offset slots abut on at least one slaving face that extends radially outward in an axial direction relative to an axis of the actuator shaft (12), twelve form-locking elements (34) located on receptor plate (14) that are distributed uniformly over an angular range defined by an entire circumference of a circular bearing face of the receptor plate (14) or twelve form-locking elements (34) have a trapezoidal cross section, as set forth in claims 1, 15 and 16.

Accordingly, applicant respectfully requests withdrawal of the rejection of claim 15 and 16 under 35 USC §103(a) over Raines in view of Jasch.

Claim 18

Applicant's amended claim 18 sets forth a tool (14) comprising a centering element (10) and a fastening portion (44) comprising twelve form-locking elements (12') for axial mounting and fastening onto a drive shaft (16) of a hand-held power tool, where the drive shaft is drivable in oscillating fashion and the centering element (10) is intended for centering relative to said drive shaft (16). The twelve form-locking elements (12') are intended for defining a rotary position relative to said drive shaft (16) and are located radially outside said centering element (10). Each of the twelve form-locking elements (12') has a quadrangular cross section that corresponds to a trapezoidal cross-section of form-locking elements (12) of a bearing flange (38) of a device for fastening the tool to the drive shaft (16) of the hand-held power tool.

In a mounted state, each of the form-locking elements (12') abuts on at least one slaving face (22) of the form-locking elements (12) of the bearing flange (38) of the device for fastening said tool to the drive shaft (16) of the hand-held power tool.
Moreover, the twelve form-locking elements (12') are distributed uniformly over an angular range that is defined by the entire circumference of a circular face of the fastening portion (44).

Goris describes a clamp assembly for holding a blade in a powered bone saw, wherein the clamp assembly comprises lugs with a quadrangular cross section. Goris fails to overcome the shortcomings of Raines as described above with respect to the

rejection of claim 1 over Raines. Goris, like Raines, has the disadvantage that it's construction includes a V-shaped cut-out which weakens the profile of the tools so that the durability is decreased, particularly in the area of the v-shaped cutout. The form-locking elements, as claimed, obviates the prior art use of a v-shaped cut-out by evenly distributing the form-locking elements over an angular ranges, which again, increases durability.

And while Goris may teach the use of trapezoidal locking elements (20), these locking elements are not form-locking elements, as claimed. That is, while Goris's locking elements (20) may be trapezoidal shaped, they are inserted into and catch rectangular shaped radial slots (35), which are not form-locking elements, as claimed. In order to further prosecution, however, claim 21 is cancelled without prejudice or disclaimer of subject matter.

Accordingly, amended independent claim 18, and claims 19 and 20, which depend from claim 18, are patentable over Raines in view of Goris under 35 USC §103(a), and applicant respectfully requests withdrawal of the rejections thereunder.

Claim 24

While the Examiner asserts that Raines discloses the invention as set forth in claim 1 but for twelve rotary positions that differ from each other by their adjacent rotary positions by 30 degrees, and it would have been obvious to modify Raines by providing twelve rotary positions that differ from each other by 30 degrees, applicant respectfully disagrees.

Raines does not disclose or suggest form-locking elements (e.g., form-locking element (34)), that have at least one slaving face that extends radially outward in an axial direction relative to an axis of the actuator shaft (12), twelve form-locking elements (34) located on receptor plate (14), which are distributed uniformly over an angular range defined by an entire circumference of a circular bearing face of the receptor plate (14) or twelve form-locking elements (34) have a trapezoidal cross section, as claimed.

Accordingly, claims 24 is patentable over Raines under 35 USC §103(a), and applicant respectfully requests withdrawal of the rejection thereunder.

Claim 27

Amended claim 27 sets forth a device including a centering element, a spring element, a fastening screw, a bearing flange with a circular bearing face and at least one form-locking element for fastening an axially mountable tool to a drive shaft of a hand-held power tool. The tool is drivable in an oscillating manner. The centering element is provided for centering said tool relative to said drive shaft and the form-locking element is provided for defining a rotary position of said tool relative to said drive shaft and located radially outside said centering element, wherein more than eight form-locking elements are arranged.

A radius associated with one position of said form-locking elements is four times as large as a radius of the centering element, which form-locking elements are located on said bearing flange. The form-locking elements are distributed uniformly over an angular range that is defined by the entire circumference of said circular bearing face of said bearing flange and have a trapezoidal cross section. The fastening screw is

provided with the spring element acting as a contact-pressure flange. In a mounted state the spring element automatically deflects the tool past chamfers of the twelve form-locking elements into a rotary position in which the tool can be fixed by tightening said fastening screw.

Such claimed construction provides for a simple adjustment of a rotary position of a tool by arranging the fastening screw provided with a spring element acting as a contact-pressure flange. In a mounted state, the spring element automatically deflects the tool past chamfers of twelve form-locking elements into a rotary position in which the tool can be fixed by tightening the fastening screw. The construction thereby allows for an operator to simply adjust a rotary position by moving the tool against the spring force of the spring element and then rotate the tool in the desired rotary position before the operator tightens the fastening screw.

So while Raines may disclose at least one form-locking element (84; 85), tool (Figs. 7-10), a power tool (10) with drive shaft (12), as described in detail above, Raines nevertheless fails to disclose or suggest the structural elements as claimed, nor the intended functioning and respective advantages of same.

Accordingly, amended independent claim 27, claims 28, 29 and new claim 32, which depend from claim 27, are patentable over Raines under 35 USC §103(a), and applicant respectfully requests withdrawal of the rejections thereunder.

Claim 30

Amended claim 30 sets forth a tool with a centering element and a fastening portion with form-locking elements for axial mounting and fastening onto a drive shaft of

a hand-held power tool, where the drive shaft is drivable in oscillating fashion, the centering element is intended for centering relative to the drive shaft, the form-locking elements are intended for defining a rotary position relative to said drive shaft and the form-locking elements are located radially outside said centering element. The centering element and the form-locking elements are arranged in a first tool part, which is arranged in parallel to a second tool part that is connected to the first tool part via an inclined section.

The form-locking elements have a quadrangular cross-section that corresponds to a trapezoidal cross section of form-locking elements of a bearing flange of a device for fastening the tool to the drive shaft of the hand-held power tool. The form-locking elements are distributed uniformly over an angular range that is defined by the entire circumference of a circular face of said fastening portion.

Such a construction, as claimed, in addition to the claimed structural elements and advantages that distinguish it as a whole from Raines, as described above, provides for a construction space for components of a hand-held power tool. Such construction space is enabled by arranging the centering element and the form-locking elements in the first tool part, in parallel to the second tool part, which second tool part is connected to the first tool part via an inclined section. It is this inclined section, in cooperation with the other claimed elements, that makes the construction space available between the tool, especially the second tool part, and the hand-held power tool.

Raines, as described in detail above, fails to disclose or suggest the structural elements as claimed, nor the intended functioning and respective advantages of same.

Goris suffers the same shortcomings of Raines. Goris discloses only a lug comprising an inclined section. Hence, neither Raines nor Goris teach or suggest a tool with a centering element and form-locking elements in a first tool part, where the first tool part is arranged in parallel to a second tool part and which second tool part is connected to the first tool part via an inclined section, as claimed.

And while Jasch may teach the use of spring element (98) for preventing the release of the screw in operation, Jasch does not remedy the shortcomings of Raines and Goris, as stated.

Accordingly, amended independent claim 30 is patentable over Raines in view of Goris under 35 USC §103(a), claim 31, which depends from claim 30, is patentable under 35 USC §103(a) over Raines and Goris further in view of Jasch, and applicant respectfully requests withdrawal of the rejections thereunder.

New Claim 33

With respect to new claim 33, as set forth above, applicant respectfully asserts that none of Raines, Trott, Hutchins, Jasch or Goris teach or suggest a method for fastening an axially mountable tool to a drive shaft of a hand-held power tool with the claimed limitations. That is, none of the references teach or suggest rotating a tool to determine a rotary position relative to a drive shaft such that the tool is automatically deflected by a contact pressure generated by the spring element past chamfers of form-locking elements into a rotary position in which the tool can be fixed. Nor do the references teach or suggest a step of tightening the fastening screw to press the tool via

a spring element against a bearing face of the bearing flange, where the spring element generates a clamping force to fixedly mount the tool to the drive shaft.

Claim 33, therefore, is patentable over the prior art references of record in this application.

Accordingly, the application as amended is believed to be in condition for allowance. Action to this end is courteously solicited. However, should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call in order to discuss appropriate claim language that will place the application in condition for allowance.

Respectfully submitted,
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